

Laboratory **National Institute of Secondary Steel Technology, G.T. Road, Mandi Gobindgarh, Distt. Fatehgarh Sahib, Punjab**
Accreditation Standard **ISO/IEC 17025: 2005**
Certificate Number **TC-7026** **Page 1 of 2**
Validity **12.03.2018 to 11.03.2020** **Last Amended on --**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>CHEMICAL TESTING</u>				
I.	METALS & ALLOYS			
1	Carbon, Low Alloys Steel & Stainless Steel	Carbon (C)	IS 228 (Part 1)	0.05 %to 1.0 %
		Silicon (SI)	IS 228 (Part 8)	0.05 % to 0.50 %
		Manganese (Mn)	IS 228 (Part 2)	0.20 % to 1.20 %
		Phosphorus (P)	IS 228 (Part 3)	0.01 % to 0.13 %
		Sulphur (S)	IS 228 (Part 9)	0.01 % to 0.05 %
		Chromium	IS 228 (Part 6)	0.1 % to 20 %
		Nickel	IS 228 (Part 5)	0.1 % to 12 %
		Molybdenum	IS 228 (Part 7)	1.0 % to 5.0 %
		Molybdenum	IS 12473 (Part 4)	0.01 % to 0.5 %
		Nitrogen	IS 228 (Part 19)	0.002 % to 0.50 %
		Copper	ASTM E350-12	0.004 % to 0.5 %
		Vanadium	ASTM E350-12	0.006 % to 0.15 %
		Aluminium	ASTM E350-12	0.005 % to 0.2 %
		Titanium	IS 12473 (Part 4)	0.01 % to 0.5 %

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<u>MECHANICAL TESTING</u>				
I.	MECHANICAL PROPERTIES OF METALS			
1.	Steel and Alloy Steel (bars/sheet/high strength bars and wires for concrete reinforcement)	Tensile Strength	IS 1608	10 N/mm ² to 800 N/mm ² (10 kN to 1000 kN)
		Yield Strength	IS 1608	10 N/mm ² to 800 N/mm ² (10 kN to 1000 kN)
		% Elongation	IS 1608	5 % to 40 %
		Bend	IS 1599	Qualitative (Mandrel size: 6 mm to 200 mm)
2.	High Strength deformed steel bars and wires for concrete reinforcement	Re-Bend	IS 1786	Qualitative (Mandrel size: 16 mm to 280 mm)
		Mass per meter	IS 1786	0.5 kg to 50 kg
3.	Steel and Alloy Steel	Charpy Impact	IS 1757	2 Joule to 300 Joule (At ambient and (-)20°C)
		Izod Impact	IS 1598	2 Joule to 160 Joule (At ambient and (-)20°C)
		Rockwell Hardness	IS 1586	20 HRB to 100 HRB 20 HRC to 70 HRC
		Brinell Hardness	IS 1500	80 HBW to 350 HBW
		Scleroscope Hardness	IS 7096	30 HSD to 100 HSD
II.	BUILDING MATERIALS			
1.	Testing Bond in Reinforced Concrete	Pull Out	IS 2770 (Part 1)	0.1 N/mm ² to 80 N/mm ²
2.	Concrete Cube	Compression strength	IS 516	5 N/mm ² to 80 N/mm ²